

GEOLOGY AND GEOGRAPHY

Chairman: DUNCAN MCGREGOR, Indiana Geological Survey

LOWELL DILLON, Ball State College, was elected chairman for 1962

ABSTRACTS

The Borden Formation at Highbridge, Indiana. DAVID M. PATRICK, Purdue University.—The rocks of the Borden formation of southern Indiana have been the subject of much investigation and controversy, but little work has been done on this formation in northern Indiana. The purpose of this investigation is to describe the stratigraphic and areal relationships of the Pennsylvanian-Borden contact at Highbridge, Indiana. Here the Mansfield sandstone (Pennsylvanian) overlies the Borden formation (lower Mississippian). At Attica, Indiana, the Borden is represented by a marine siltstone of undisputed Mississippian age, while at Highbridge, the siltstone is continental and contains coal seams and plant fossils. North and south of the main gorge at Highbridge, the siltstone becomes lighter in color and contains Mississippian marine fossils similar to those at Attica. The problem is whether the dark, continental siltstone at the main gorge at Highbridge is continental Borden or a Pennsylvanian channel filling on top of the Borden. By comparing and identifying the flora of the continental deposit, and the areal relationships, it is believed that this flora represents deposition in a typical Pennsylvanian swamp environment and that the section there represents a Pennsylvanian channel filling.

The Instrument Tiltometer and the Dynamical Elasticity of the Earth's Crust. GERALD J. SHEA, Terre Haute.—The Tiltometer, an instrument devised for measuring a change in mass by the use of a horizontal pendulum. Based in theory on the assumption that the solid material composing the earth's crust is in reality elastic in nature. Based in fact on the observations by the use of an instrument devised to show experimentally the existence of the elastic solid described. The use of so minute a curve as measured in an elastic solid may at first prove bothersome. To really understand the functions involved is not simple but it is a known fact that the earth and all it is composed of is in reality an elastic solid. Being thus the material of the crust, as well as the deeper layers may be proved to obey all the laws governing confined fluids. A slab of rock, which appears to exhibit no elasticity, can be shown by the analysis of instruments to be as elastic in nature as a block of rubber. From the study of the principles governing the function of the seismograph was derived this instrument. The recording trace of the seismograph in response to a given tilt was observed when changing the record daily. This deviation was known to be due to the bending of the material upon which the seismograph rested. It was found that a man's weight (165 pounds) at a distance of four feet from the column caused a trace displacement of one inch on the record. Two men at the same distance caused a displacement of two inches, etc. All that was now necessary was to devise a portable form of seismograph having high sensitivity and stability to measure any given change

in mass at any reasonable distance. Practical applications of the idea have been to weigh huge semi-trailers, water tanks, coal piles, and individuals.

Abstract of How Old Is Man? J. A. REEVES, West Terre Haute.—A few thousand years ago Moses wrote that God made Adam and Eve, the first man and woman, about 6,000 years ago. As time goes on scientists keep increasing this figure. There are very great differences of opinion as to the proper figure. This paper attempts to choose a figure that is nearer the true figure than any submitted before. The Gargantuan Calendar, the steps made by Nature in the formation of coal and the finding of the Abominable Coal Man in northern Italy are submitted in determining another figure.